

WRITTEN FOR THE SUNDAY REPUBLICAN.

At a friendly little gathering a few days ago the discussion turned upon odd mathematical problems, and after many had been propounded and solved one young man asked why, when the digits of a two-place number were reversed the difference between the two numbers was always exactly divisible by nine. Several of the party insisted that this was not so except in the case of multiples of nine, such as 18 reversed to 81, 27 reversed to 72, and so on, but it was found, after testing various combinations of two digits, that whether or not the numbers themselves were exactly divisible by nine the difference between the two invariably was.

Much interest was manifested in this discovery, and brains were severely cudgelled to find the true explanation, but after many attempts, none of which resulted in a satisfactory solution, the mystery remained as great as ever when the party broke up.

Not being able, after giving long thought to the matter, to find the true explanation, I submitted the problem to a friend who is a mathematical turn of mind, and after a few moments of cogitation he answered me as follows:

"The number nine possesses many odd characteristics well known to mathematical students and made use of by them in proving complicated calculations. One of these is that if the sum of the numbers of a number will not contain it an exact number of times without leaving a remainder, that remainder is always the same as the one left over when the digits of the number are added together. And this total so added divided by nine. Now, being the digits of a two-place number, there is no alteration in the remainder left over on dividing either number by nine, and it is clear that when one is taken from the other the difference remaining cannot but be an exact number of nines."

"This rule," he continued, "applies not only to two places, but to numbers of larger denominations, matter how many digits there may be, and in matter in what way the digits may be intermixed. Provided the same digits are employed in two numbers, irrespective of the order in which they may be used, the difference between the two such numbers is always divisible by nine."

**NEW DEVICE TO THWART THE PURSE-SNATCHER.**

Pickpockets who have been in the habit of making a living stealing purses from women on the street or in crowded stores are likely to find their occupation gone in the near future, since a cunning device has just been invented which will render it impossible for them to snatch the coveted portmanteau.

This device, which is attached to any purse, consists of small band, at one end of which is a ring at the other end a clasp. The ring intended to be worn loosely on the ladyfinger, and by means of the clasp she catches the purse to her side so that she can be removed without her knowledge.